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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/601,151	06/20/2003	Achintya K. Bhowmik	ITL.0982US (P16217)	7131

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EXAMINER

LEPISTO, RYAN A

ART UNIT PAPER NUMBER

2883

DATE MAILED: 07/27/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

H.A.

<b>Office Action Summary</b>	<b>Application No.</b> 10/601,151	<b>Applicant(s)</b> BHOWMIK ET AL.	
	<b>Examiner</b> Ryan Lepisto	<b>Art Unit</b> 2883	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 06 July 2005.  
 2a) ☐ This action is FINAL.                      2b) ☒ This action is non-final.  
 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1,4-13,16,17,19-29,32 and 33 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) ☒ Claim(s) 1,4-13,16,17,19-21,29,32 and 33 is/are allowed.  
 6) ☒ Claim(s) 22 and 24-28 is/are rejected.  
 7) ☒ Claim(s) 23 is/are objected to.  
 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.  
 10) ☒ The drawing(s) filed on 20 June 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) ☐ All    b) ☐ Some \* c) ☐ None of:  
 1. ☐ Certified copies of the priority documents have been received.  
 2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
 \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

1. **Claims 22 and 24-26 and 28** are rejected under 35 U.S.C. 102(e) as being anticipated by **Dragone (US 2004/0213520 A1)**. Dragone teaches an optical multiplexing/demultiplexing filter (Figs. 1, 3-4) which are known to be formed as planar light circuits comprising an input (110) and output (124) coupler and a plurality of waveguides (306, 308) (any two can be taken as a pair) coupled to the output coupler (124) (Fig. 3) that have a length difference (the fourth waveguide in group 306 with the first fiber in group 308, for example) (paragraph 0020) for producing a flat spectral output signal (paragraphs 002, 0011).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. **Claim 27** is rejected under 35 U.S.C. 103(a) as being unpatentable over

Dragone as applied to claims 22, 26-26 and 28 above, and further in view of **Bidnyk (US 2002/0191887 A1)**.

Dragone teaches the filter described above.

Dragone does not teach expressly directional couplers coupled to the output waveguides.

Bidnyk teaches output waveguides coupled to directional couplers.

Dragone and Bidnyk are analogous art because they are from the same field of endeavor, arrayed waveguide gratings.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use directional couplers at the output of arrayed waveguide gratings to monitor the output signal.

The motivation for doing so would have been increase efficiency by being able to monitor the output signal at the end of the arrayed grating system (Bidnyk, paragraphs 0064-0067) so any problems and needed adjustments can be seen and done.

### ***Allowable Subject Matter***

3. **Claims 1, 4-13, 16-17, 19-21, 29 and 32-33** are allowed.

The following is a statement of reasons for the indication of allowable subject matter:

With regard to claims 1, 8, 17, 29 and 33: These claims are allowable over the prior art of record because the latter, either alone or in combination, does not disclose nor render obvious an arrayed waveguide grating including an output slab waveguide with pairs of output waveguides coupled to the output slab waveguide and directional couplers or multi-mode interference couplers wherein the primary channel spacing (as defined by applicant) between paired first and second waveguides coupled to the same coupler is different than the secondary channel spacing (as defined by applicant) between the waveguides coupled to different but adjacent couplers, or the pairs of output waveguides having the length relationship stated in the equation of claim 17, in combination with the rest of the claimed limitations.

With regard to claims 4-7, 9-13, 16, 19-21 and 32: These claims are allowable over the prior art of record because they depend from allowable claims.

4. **Claim 23** is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: This claim would be allowable over the prior art of record if rewritten in independent form including all of the limitations of the base claim and any intervening claims because the latter, either alone or in combination, does not disclose nor render obvious a waveguide pair coupled to an output waveguide coupler wherein the length

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difference of the pair is approximate to the equation of claim 23 such that a flat spectral output signal is produced, in combination with the rest of the claimed limitations.

### ***Response to Arguments***

5. Applicant's arguments with respect to claim 22 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following are further references that are pertinent to the state of the art: Doerr (US 6,212,315 B1), Epworth et al (US 6,144,783), Zirngibl (US 6,163,637), Han et al (US 6,188,818 B1), Day et al (US 6,266,464 B1), Inada et al (US 2002/0071155 A1), McGreer (US 2002/0159703 A1).

### ***Contact Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ryan Lepisto whose telephone number is (571) 272-1946. The examiner can normally be reached on M-F 7:30AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank Font can be reached on (571) 272-2415. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Ryan Lepisto

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Date: 7/21/05



Frank Font

Supervisory Patent Examiner

Technology Center 2800